

61755

APPENDICOSTOMY AS A THERAPEUTIC MEASURE.

THESIS FOR THE DEGREE OF M.D.

by

W. A. WILSON-SMITH,
M.B., Ch.B., (Univ. Edin. 1904).



APPENDICOSTOMY AS A THERAPEUTIC MEASURE.

The term Appendicostomy is applied to the establishment of a direct communication between the Caput Caecum Coli and the surface of the Abdomen, the lumen of the Vermiform Appendix being utilised for this purpose. This operation was first performed by Dr. Robert Weir of New York in April 1902, and an account of it was published in the New York Medical Record of August of the same year. The name Appendicostomy being suggested for the operation by Dr. Meyer.

Since that date the procedure has been repeated from time to time by various Surgeons, but as yet comparatively few instances have been reported in the current medical literature, while there does not appear to have been any serious attempt to collect these recorded cases, or to sift the evidence afforded by them, either in favour of or adverse to the operation and the subsequent course of treatment which it enables the physician to employ.

It will be the aim of this paper to collect such references from the literature, and, with the addition of four cases seen by the writer, to endeavour to form some conclusions as to what may and/

and what may not be expected from this comparatively new mode of treatment.

At the outset it may be definitely stated that the operation is not undertaken on account of any abnormal condition of the vermiform appendix, nor does the operation alone offer any relief to the patient, but it is only of therapeutic value in so far as the Appendix is utilised as an opening by which substances can be introduced into the Colon, or through which the contents of the bowel are allowed to escape. In considering some forty cases which have been collected, we shall endeavour to classify them according to the nature of the disease from which the patient suffered; we shall then take note of those conditions for which Appendicostomy has been suggested as offering possible advantages over the usual methods of treatment, but which have not been illustrated by actual cases as yet. Considerable difficulty has been experienced in this arrangement of the cases, due in many instances to the very brief references contained in the periodicals; and to the general laxity in the use of such words as mucous and membraneous as applied to Colitis, making it impossible in every case to be certain as to what affection has really been present. For this reason in recording/

recording these cases we have placed them together under the common head Muco-membranous Colitis, and have not attempted to make one class of Mucous Colitis and another of Membranous Colitis, though this would have been desirable. As mucus is found so frequently in the stools when the Colon is affected, and is not a symptom of any one disease, it is unfortunate that these cases have to be placed with those of Membranous Colitis, a disease with distinct clinical features.

In several instances we have found it necessary to write to Surgeons for fuller or more recent information regarding their cases, and we must express our obligation to each for the courtesy of his reply.

Several cases are so purely surgical in character that they almost fall outside the scope of this paper, but are given after the others for the sake of completeness.

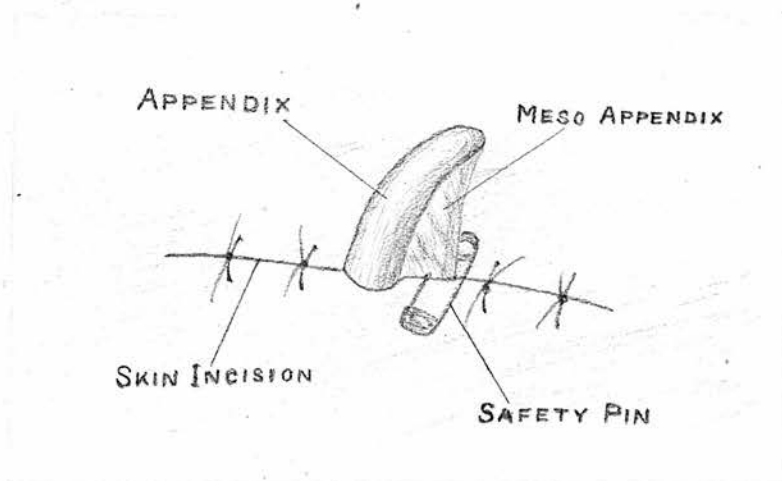
Before passing to the discussion of the cases it might be well to look briefly at the operation from the surgeon's standpoint, noting any difficulties or risks, and how best to meet them.

The operation under ordinary circumstances is extremely simple, the routine in most cases being as follows:-

Under/

Under modern technique, an incision from 2 to 3 inches long is made over Mc.Burney's point, separating the muscles by the grid-iron method. The Appendix is secured and drawn up through the wound, avoiding undue tension, until its base is as close as possible to the parietal peritoneum, a few stitches may be inserted fixing these in apposition. The tip of the Appendix is now projecting above the surface of the skin and is fixed by a couple of sutures to the edges of the skin incision, or an alternative method is to pass a safety pin through the Meso-appendix with its ends resting on the surface of the abdomen.

The appearance presented at this stage is shown in the accompanying sketch.



In/

In the course of a few hours the wound is sealed by plastic lymph which is freely thrown out by the Appendix: this lymph in the course of several days becomes organised, and holds the organ in position fairly firmly. When this has taken place the projecting end of the Appendix may be cut flush with the skin: this is a painless proceeding and is done with scissors. The main artery lies parallel with and near the free border of the Meso-appendix, and may need to be ligatured. There is now no difficulty in passing an English number 8 red rubber catheter into the lumen and along this into the Caecum. We have found that a gum elastic instrument, being stiffer, is more easily managed, especially is its tapering extremity of use when there is any spasm or stricture.

There are one or two points which need to be mentioned, before we take up the difficulties that may be met with.

As above stated, the main artery runs near the free edge of the Meso-appendix, and gives off at intervals branches which run into the Appendix with very little anastomosis between each other; for this reason, care must be exercised not to include this artery in any suture, for if it is ligatured gangrene will be produced in the distal portion of the/
the/

the Appendix.

In several cases the Appendix has been opened at the time of the operation, and apparently without bad results; yet we must strongly object to this on theoretical grounds, for opening the mucous membrane must introduce sepsis into the area of the wound, and at this early stage there is nothing to prevent its spread back into the Peritoneum, while in addition infection of the wound would entail breaking down of the plastic lymph so loosening the Appendix, which might sink deep into the wound if not into the abdomen.

To avoid this risk the Appendix should not be opened for 4 or 5 days after it has been fixed in the abdominal wall. It is probably wiser not to trust entirely to the safety pin to keep the Appendix up in place, but also to place a few sutures round its base, uniting it to the abdominal wall.

In addition to these points certain difficulties may confront the surgeon which we shall now deal with.

1. Adiposity. The abdominal wall might be too thick to let the appendix reach up to the surface: this is not likely to occur, for persons/

persons in whom this operation might be advised, are probably suffering from a more or less chronic and wasting affection. The best way to treat the condition, were it met, would be to cut away sufficient subcutaneous fat to let the skin be depressed until it could be sutured to the Appendix, which would then open at the bottom of a funnel shaped depression.

Certain anatomical causes may be mentioned.

2. Congenital Absence of the Appendix Vermiformis.

This is a rare condition but is described on page 1079 of Professor Cunningham's Text Book of Anatomy. As an alternative operation Caecostomy would probably be performed. In passing one would remark, that possibly some of these cases may have been instances of destruction of the Appendix by previous inflammation.

3. Transposition of Viscera. A condition of such rarity as to be of no practical importance; yet recently two cases have been reported in which the Caecum and Appendix were found at operation to be on left side, vide British Medical Journal, Vol.II, 1906, page 573 by Mr. Billington F.R.C.S., and British Medical Journal, Vol.I, 1907./

1907, on page 260 by Mr. Bhajeker. It would be easily recognised and treated.

4. Shortness of the Appendix. This may be absolute, and prevent the operation: or it may be relative, from twisting of the organ upon itself. This is a fairly common condition and requires partial division of the mesentery before it can be straightened out; for the reasons already given this must be done with great care to avoid gangrene.

Some of the difficulties are Pathological in origin.

5. Adhesions of the Appendix are of common occurrence being the result of previous inflammation binding it down in the abdomen. They require considerable care and time for their division. Cases occur in which the adhesions are so dense that their separation can not be accomplished without incurring too great a risk, as in III C₅ of this paper - when an alternative operation must be done.

6. Stricture is not infrequently the result of inflammation, and may be found at any point in the Appendix, the length of the stricture and also the degree of occlusion varies up to complete/

complete obliteration, which is found in 3 or 4 per cent of bodies, the mucosa having been totally destroyed at this spot. So long however as the cavity remains pervious, a stricture can be dilated to a remarkable extent.

7. Obliteration of the Appendix may result from inflammation, its position being represented by cicatricial tissue. In a case of Meyer's partial obliteration was found and necessitated the alternative operation of Caecostomy. This state of affairs would be comparable to congenital absence and would need to be dealt with accordingly.
8. Atrophy. This occurs normally with advancing years after middle life but does not present so much difficulty as at first sight might be anticipated. In a case reported by Mr. Keetley it was possible, contrary to expectation, to introduce a small Rectal tube after dilating the Appendix.

However if at the time of the first operation the Appendix should be so atrophied as to raise doubts as to its being capable of sufficient dilatation, then the procedure practised by Mr. Keetley may be adopted, namely to draw the Appendix as far as possible into the wound/

wound in an oblique direction downwards, so as also to bring part of the adjacent Caecum into the wound, where it should be fixed by suturing to the parietal peritoneum; and if on opening the Appendix, this can not be dilated to the desired extent, then by slitting up the Appendix and continuing this incision into the Caecum an opening of the requisite size can be obtained. For this procedure Mr. Keetley suggests the name Appendico-caecotomy. But by this means the distinctive valvular action characteristic of Appendicostomy is lost, and the opening behaves like an ordinary Caecostomy. Mr. Keetley wished in this case to use the opening as an artificial anus and required to introduce a Rectal tube for this purpose; but it was found that, despite its atrophy, the Appendix could be stretched to admit a small Rectal tube.

When at length it is desired to close the Appendicostomy, it is unnecessary to dissect out and remove the whole organ; it is simply done by destroying with the cautery, or by dissecting out, the distal portion of mucosa; this allows the epithelium to close over the stump, which is at hand and could be easily isolated at any time/

time if it were desired to continue treatment.

After the discussion of so many possible difficulties that many attend the operation, we shall briefly consider the points in favour of Appendicostomy, and contrast it with other surgical measures employed for similar conditions.

1. It offers a direct method of gaining access to the interior of the Colon at its proximal extremity. This is of value in introducing fluids for the treatment of various affections of the large bowel.
2. It is provided with a distinct and frequently perfect valvular action, so preventing escape of intestinal contents.
3. As a result of there being no regurgitation, the patient is not anxious for it to be closed at the earliest possible date, so that treatment can be kept up for a long period, a matter of considerable importance in some affections of the Colon.
4. It does not tend to close, as is the case in Caecostomy or Colostomy.
5. It can be simply closed and again easily opened if need be.
6. By it the lower end of the Ileum can be reached through the Ileo-Caecal valve.

7./

7. It is an extremely simple operation as a rule.

Compared with other openings into the bowel at this point, by means of Caecostomy or Colostomy, it presents advantages in all these respects with the exception of the first and the sixth. While compared with Ileo-sigmoidostomy in the treatment of chronic constipation, it would seem in every way preferable, except that there must be the trouble of injecting through it, but this question is taken up again on page 58.

Having considered the subject of Appendicostomy in its general and theoretical bearings, we shall now proceed to examine it in the light of practical application and see whether the results from its use fulfil the expectations that have been raised by the preceeding considerations.

I would here express my thanks to those gentlemen who have laid at my disposal, cases which they have done but have not published: Mr. J. M. Cotterill (4 cases), Mr. J. L. Stretton (3 cases), Mr. W. H. Moore (1 case) and Mr. H. M. Gray (1 case).

In recording these cases, the history and symptoms have been briefly given, as without this, they would have lost much of their instructiveness.

They have been divided into groups according to the disease from which they suffered.

I. Muco-Membranous Colitis.

In this class twelve cases have been collected which have been treated by irrigation after a preliminary Appendicostomy.

- a. In an article on page 863 of the British Medical Journal Vol. II, 1905, Mr. C. B. Keetley refers to a case under the care of Mr. Donald Armour; this reference Mr. Armour has kindly amplified by sending some detail of two cases which he has had.

Case I, the patient was a single woman aet. 24, who had suffered all her life from Constipation, and was addicted to the use of aperients. She was first seen in February 1905, when she was suffering from a typical attack of Mucous Colitis and passing a quantity of Membranous casts. The Colon was tender throughout its entire length. She was ^{seen} again in August 1905 but had passed no casts since her attack in February, though suffering still from pain and constipation. The pain was now referred to the right Iliac fossa, and was continuous in character with exacerbations. While she also suffered from headaches and retching, but did not vomit. Appendicostomy was performed on 19th August 1905. Two days later the protruding portion/

portion of the Appendix was cut off flush with the skin, and a number 9 soft catheter passed into the Caecum. The communication was kept open until December and a daily action of the bowels ensured by injecting Mag. Sulph. dissolved in a pint of warm water.

Seen again in June 1906. The Constipation had returned to a certain extent, but she was otherwise quite well, and asked for permission to marry. Seen again in February 1907. Her general health was excellent and there was no return of the Mucous Colitis; she suffers only occasionally from Constipation.. She was married and pregnant

- b. Case II. A married woman aged 26 years was admitted to the West London Hospital under the care of Dr. Beddard on February 11th 1905 suffering from Mucous Colitis with the passage of membranous casts.

Three weeks before admission she had been seized with very severe pain all over the abdomen, continuous in character with exacerbations, but bearing no relation to food. She had been suffering from constipation. Five days before admission there had been a similar attack/

attack and passage of casts. Three weeks later on the 28th February she passed more casts.

She was now put on van Noorden's diet and had no return of the casts, though the pain continued off and on until her discharge on 6th May. On 24th June she was readmitted with a return of all her symptoms. At Dr. Beddard's request Mr. Armour performed Appendicostomy. Injections of Mag. Sulph. and afterwards Sod. Bicarb. were made. The patient improved steadily and left hospital quite well on 7th August 1905.

Seen again February 26th 1907. She says that she has been in perfect health since leaving the Hospital living her usual life and eating her ordinary food.

- c. In the Lancet, Vol.I, 1906, page 1180; a report of the proceedings of the Nottingham Medico-Chirurgical Society on 18th April 1906 contains a reference to notes read by Mr. W. Morley Willis on a case of Mucous Colitis treated by Appendicostomy.

The patient was a woman aged 32 years who had suffered for at least two years from Abdominal pain, had scybalous motions, and had lost flesh. Independently/

Independently of faecal stools she had passed blood, mucus, or membranes daily, and there was the train of neurotic symptoms usually present in these cases.

A week after the operation, lavage of the Colon was begun, some two or three pints of soap and water being run in daily through a catheter. There was no leakage. Very great improvement had taken place in all the symptoms during the three weeks in which treatment had been carried out. The fluid was retained for 20 minutes or longer before a natural evacuation followed. She had by that time developed a healthy appetite and took an interest in life. Her present condition is described in a letter from her doctor to Mr. Morley Willis dated 17th February 1907, which states that there has been little or no discharge from the wound, the only trouble present there, being at times a very slight irritation, which is soon put right by an application of Zinc Ointment. The patient has not been sick since the operation nor has she had any pain, which is in marked contrast with the almost continual vomiting and pain for three years previous to operation. She continues to wash out the Colon regularly, using a pint and a half/

half of soapy water, and has a good action of the bowels afterwards. There has not been any passage of casts and only occasionally traces of mucus. Though her appetite is poor she has put on some weight.

- d. The next case was one under the care of Mr. J. L. Stretton. The patient an unmarried woman aged 29 years, was admitted on 26th October 1905 to the Kidderminster Infirmary. She was very neurotic, had had a considerable amount of illness and suffering, and for some years had suffered from Mucous-Membranous Colitis, with severe smarting pain along the course of the Colon. She was thin, had a poor appetite and was troubled with constipation. On 7th November 1905, the Appendix was brought up to the surface in the usual way, but it was necessary to partially divide the Mesio-Appendix to allow of its being straightened out.

Two days later the projecting tip was removed and a rubber catheter introduced, and 1 oz. of Mist. Alba and one pint of warm water were run in; within half an hour there was an action of the bowels, about 4 ozs. being passed. However the superficial part of the wound became infected, the end of the Appendix became loose and attempts/

attempts to introduce the catheter were painful and unsuccessful, the wound was therefore allowed to heal over with the exception of a small sinus; this did not however communicate with the Caecum.

On 8th December the wound was partly opened, and the Appendix brought up and again fixed in place; for a week injections were given but the wound was tender and their administration caused so much pain that they were stopped. The wound healed over completely and the patient went home in January 1906.

Readmitted 24th May 1906 as the Abdominal pain which had not been so bad after the injections, had lately become worse.

The tip of the Appendix was found lying just under the skin and was fixed again to the skin, and was allowed to heal firmly before lavage was started.

On 3rd June a No.7 red rubber catheter was easily and painlessly introduced and a pint of normal saline solution injected; with the result that in an hour half a pint of nearly clear fluid was passed per anum containing long white stringy pieces of Mucus, not unlike *Ascaris Lumbricoides* in size, and also thin filmy brown mucoid material somewhat/

somewhat resembling gutta percha tissue. Next day three pints were run in easily: but caused some feeling of sickness.

Daily thereafter two pints of soap and water were run in through the catheter which she passed for herself.

In addition to this from the 12th June onwards after the wash out, a pint of water containing one grain of Silver Nitrate (approximately 1 in 10,000) was run in and allowed to remain in the Colon.

On 25th June she was discharged from Hospital, and continued the treatment at home for some time. The quantity of mucus had diminished and though she still said there was pain it did not appear to trouble her.

She reported herself from time to time afterwards, and said that she had been benefitted by the treatment, though she had not continued it conscientiously. The small opening through which a probe can be introduced into the Caecum gives no trouble and there is practically no discharge whatever.

There is no doubt that this patient derived real benefit from the irrigation, and was improving, but she was a very self-willed and difficult/

difficult patient to manage, so that after her first interest in the treatment had abated, she would not continue it.

The trouble in the early stages of treatment was entirely due to sepsis in the wound, from the Appendix having been opened too soon.

- e. In the Lancet Vol. I, 1906 page 596, Mr. H. M.W.Gray of Aberdeen briefly reported a case of Muco-Membranous Colitis in a young woman aged 24 years, in which there were extensive casts of the Colon and frequent calls to stool; irrigation with Argyrol was employed with the result that in three weeks there was apparent cure, so that the opening was allowed to close over which it rapidly did.

There were later on signs of relapse, but I hear from Mr. Gray that she has been very much better than before the operation: and at the last report she was quite well and married.

- f. Mr. Mognihan reported in Vol. II Lancet 1903 on page 1430 that he had done Appendicostomy for the purpose of flushing out the large intestine affected with muco-membranous inflammation and that the patient had recovered.

- g. Three cases of Mucous Colitis have been treated/

treated by Mr. J. M. Cotterill which though not reported, I have been permitted through his kindness, to include in this series.

Mr. Cotterill says that in two of these cases the result was highly satisfactory, while in the third case there was some improvement. These cases of Appendicostomy were done I believe in 1906.

- h. In the Lancet Vol. II, 1905 on page 1842 it is recorded that at a meeting of the Hunterian Society on 13th December 1905: the president Dr. F. J. Smith during the discussion of a paper by Mr. Hugh Lett mentioned that he had twice done Appendicostomy, in cases of Colitis, which had improved as the result. Dr. Smith mentions that the use of Cyllin as an irrigant produced great irritation of the Colon.
- i. Dr. E. Stanmore Bishop at a meeting of the Manchester Medical Society on 1st March 1905 gave details of a case of Muco-Colitis which he had treated by Appendicostomy. The Lancet, Vol. I, 1905 mentions the fact on page 720. Further detail is given in a letter kindly written by Dr. Stanmore Bishop on 7th March 1907. The operation was performed on 27th November 1903 and the Appendix left open till February 1904 nearly three months later. "The mucus had not then/

then ceased, and the opening was only closed at her insistent request. She left the Hospital and I lost sight of her for some time, but she turned up again in November 1904 with a small fistula in ano, and to my delight, declared that from one month after leaving she had had no further symptoms of the Colitis." She had been seen that day and was looking well, she had passed no more of the old mucus.

Of these twelve cases grouped together as Muco-membranous Colitis we find that the first five have been recorded in considerable detail and that they can be analysed in a way that the remaining seven can not be: for this reason we shall look at them separately. These five cases were all ^{or} characterised by the passage of membranous casts of the bowel, by constipation and abdominal pain. They occurred in women whose ages ranged from 22 to 32 years, averaging 26.5. Thus there can be little doubt that these five were all well marked examples of membranous Colitis. In only one instance, case d, was the cure not complete, but she had been very considerably benefitted by the treatment. The other four cases had apparently lost all symptoms of their trouble. The remaining seven cases may or may not have shown definite signs of membranes, the references to them are regrettably scanty in all details and their value is correspondingly diminished. Case f. is described/

described as one of muco-membranous Colitis and probably is to be classed with the first five cases.

The results taking the twelve cases together, show four benefitted and eight cured after regular irrigation of the large intestine. In only the first five cases is there any mention of what substances were used for irrigation. One pint of warm water containing Magnesium Sulphate was employed in case a, being daily instilled for four months.

The second was also treated by Magnesium Sulphate solution, which was changed to Sodium Bicarbonate. Treatment lasted for seven weeks. In c. soapy water was used, three pints was the quantity at first employed, but this had been reduced to a pint and a half, and had been continued regularly by the patient to prevent constipation; by this means she secures a regular action of the bowels.

In the case of d, soap and water was also used, two pints daily: and after ten days the irrigation with soap suds was followed by one pint of Silver Nitrate Solution which was allowed to remain in the Colon. Treatment was continued for about two months; but the patient was an unreasonable and wilful girl and refused to continue it longer, though giving no reason for her action.

In case e, irrigation with Argyrol was employed for three weeks. Cyllin, formerly called Creolin, produced/

produced great irritation in case h. From this it would seem that alkaline solutions which have a solvent action upon the mucus, or astringents such as Silver Nitrate which contains 63.6 per cent of Silver and Argyrol with 20 per cent of Silver, have been chiefly used.

Silver Nitrate is a powerful antiseptic in addition to its astringent action: but Argyrol according to the work of Marshall and Neave, has no bactericidal action Brit. Med. Jour. August 18th 1906.

The treatment of Membranous Colitis is usually very unsatisfactory: nor is this surprising so long as the true nature of the condition remains undecided. In his text book, Professor Osler regards it as a Secretion Neurosis of the Colon: while Professor Hale White in Allbutt's System refers to it as an inflammation of the Colon. Working on these lines, the one would direct treatment to the nervous condition as being the most important, while also advising high irrigation of the Colon. On the other hand Professor Hale White after discussing various methods concludes by saying "Probably future experience will show, when the patient has tried all other means of relief without success, and when suffering is so great that life is a burden, that the best/

best treatment is to open the Colon on the right side, to allow the faeces to pass through the artificial anus for some months, and thus to give the diseased bowel complete rest. The artificial anus may then be closed." This treatment was first adopted in a case brought before the Clinical Society in 1895 by Mr. Golding Bird and Dr. Hale White. Several other cases are mentioned by Hale White in which the results were most encouraging. He concludes the paragraph "Experience alone can show how long the artificial anus should remain open; probably the time will vary in different cases, but to be on the safe side it should be measured by months. I would lay great stress on doing a right Colotomy rather than a left, for by means of it we are so much more likely to be well above the disease."

It is needless to again go over the points which distinguish Appendicostomy from Colotomy, but if the latter operation has been suggested, as offering the most promising results in the treatment of this very intractable disease, then with still greater assurance may the Appendix be advocated as being a preferable opening into the Caecum.

From a consideration of this series of cases, the usefulness of Appendicostomy seems to be undeniable; moreover in them it was not used as an/

an artificial anus, a condition which must always be regarded as a most objectionable state of affairs for the patient, but as an inlet through which a quantity of water was daily instilled into the bowel, and which when not in use attracted no attention to itself. This opening could be used as an artificial anus if necessary, but there does not seem to be any call for this, as treatment by irrigation has been at least as successful as treatment by resting the Colon.

Compared with irrigation from the Rectum, a line of treatment especially associated with Plombières in France, and also carried out at Harrogate, in which the hot mineral waters are used as a "douche horizontale" that is with the patient lying upon the back, Appendicostomy facilitates a more complete lavage of the Colon, for it is evidently more satisfactory to wash through a tube from one end to another, than to employ the same end for both inlet and outlet. At the same time there may be an advantage in using the Plombières water, as according to the researches of P. Curie and A. Laborde these waters possess a high degree of radio-activity, and it is possible that some of the good effects attributable to them are dependent upon this/

this activity. In passing it is of importance to note that this property of the water is not retained for any great length of time, but begins to diminish after the water is drawn off.

From this it is quite possible that the use of these radio-active waters in conjunction with Appendicostomy might yield better results than are obtainable by the use of either alone.

Finally, if the etiology of this affection be regarded as of the nature of a catarrhal inflammation, it seems rational to expect that local treatment, by removing irritating substances as well as the products of inflammation from the bowel, and by its astringent antiseptic effect, should give the best results, as in practice it does; while if the underlying cause of the disease be regarded as a secretion neurosis, the utility of local treatment is somewhat obscure.

II. ULCERATIVE COLITIS.

- a. Mr. Jonathan Hutchinson, Jr., reported a case in the British Medical Journal Vol.I. 1905, page 1039. The patient, a man aged 36 who was admitted to hospital suffering from Ulcerative Colitis, but sent in under the diagnosis of malignant disease of the Colon: had been troubled for a long time with constipation, which he attributed to his sedentary occupation. During the twelve months prior to admission he had been losing weight and had suffered from frequent calls to stool which were sudden and urgent, he passed an excess of mucus and laterly blood with the motions, and occasionally had tenesmus. The motions were always fluid, and offensive and contained blood and mucus with copious shreds of membrane, which by the microscope consisted of cellular and epithelial structures.

Appendicostomy was done on 11th November 1904. Four days later irrigation with Boric Lotion was begun: then silver nitrate was begun $\frac{1}{4}$ grain to the ounce and gradually increased to 2 grains in the ounce of water; this treatment was continued up to 24th December. On 28th December the opening was closed. The patient gained over a stone in weight and had entirely lost the symptom of/

of frequent motions with tenesmus, while the membranes and blood had ceased to be passed. He kept well; though the treatment had only lasted seven weeks.

- b. In the Lancet of 12th May 1906 page 1311 Dr. Wm. Ewart reports the case of a patient under his care in St. Georges Hospital; for whom Sir Wm. Bennett performed Appendicostomy on 20th December 1905, which is mentioned by the latter in a lecture printed in Vol.I. Lancet 1906 on page 419. The patient was a woman aged 44, suffering from Ulcerative Colitis, characterised by intractible diarrhoea which had lasted over twelve months.

The Appendix was opened on the day following the operation: and treatment begun by irrigating the Colon with a variety of remedies. Saline solution, and starch and water were tried without effect. Various astringents, Infusion of Marshmallow, Lime water, and Pulv. Ipecac in suspension with cinnamon and charcoal were all tried, as also were Glyco-thymoline and Argyrol but without stopping the profuse discharge of blood stained mucus. However after daily injections for a fortnight of two ounces of liquid paraffin in combination with charcoal by the mouth the diarrhoea stopped. The largest irrigation at any time was twenty pints introduced/

introduced under moderate pressure, with a rectal tube inserted through which the escape took place: if any distention threatened, all that was needful was to turn the patient slightly over on to the left side.

- c. In the Medical News of New York of August 26th 1905 Dr. Willie Meyer published several cases in which he had treated affections of the Colon by means of Appendicostomy. One of these relates to a man aged 21 suffering from Tuberculous Ulcerative Colitis: he was troubled with chronic diarrhoea. Six months before admission to hospital he had noticed blood in the motions, this was bright red and fluid. The motions had increased in frequency till three actions occurred after each meal and also after any exertion, these were unaccompanied by pain but there was considerable tenesmus. An incomplete fistula in ano was also present. Operation was performed in December 1904. At first the Colon was flushed with Saline Solution, and with weak Mercuric Chloride, this seemed to irritate the bowel so the corrosive was discontinued and in its place were alternately given half an ounce of Balsam of Peru or Iodoform Emulsion with a little opium to relieve any pain caused by them. The patient/

patient was kept at rest in bed on a careful diet, and Creasote in increasing doses was given by the mouth. Three months after the operation she was greatly improved, had put on weight, was out of bed, and the diarrhoea had stopped.

- d. Another of Mr. Meyer's cases was a woman aged 33 who for 2 years had suffered from frequent diarrhoea and pain, but whose symptoms had been getting worse for three months before admission, the motions being watery foul smelling and tinged with blood. Ulcers could be seen in the rectum with the sigmoidoscope and a large granulating mass apparently of specific origin: the whole course of the Colon was tender on palpation which made it probable that similar ulcers existed throughout its length.

On 2nd November 1902 the Appendix was opened. Regular daily lavage with Silver Nitrate was begun with a solution of 1 : 10,000 which was gradually increased in strength. Later on the flushing was done on alternate days and topical applications to the ulcers in the rectum were employed. At the same time there was antisyphilitic treatment. Discharged from hospital in April 1903 three months after operation, her general health had improved considerably and she had put on 28 lbs in weight. After/

After she went home the patient continued the irrigation on alternate days, and on the days on which no injection was used there was a natural spontaneous action of the bowels without mucus, pus, or blood. On Rectoscopy the mucosa appeared normal. There was no leakage from the opening of the Appendix.

In January 1904, that is fourteen months after the operation, the treatment was stopped and the patient remained perfectly well until February 1905 when the old trouble of frequent evacuations tinged with pus and blood began again. The old opening was found patent though small, and was easily dilated treatment being begun again.

- e. Mr. Gray of Aberdeen briefly reported (Lancet 1906 page 596) a case of Ulcerative Colitis with profuse bloody and mucous stools occurring in a man aged 30. Appendicostomy was performed in 1904 and the Colon irrigated: he improved for 3 weeks but rapidly sank and died four weeks after the operation. At the post-mortem, extensive advanced ulceration of the Colon and lower part of Ileum was found.
- f. In the Birmingham Medical Review June 1905 on page 339, Dr. Murrell reported a case of Ulcerative Colitis of his in which at his request Mr. Walter Spencer performed catheterisation of the/

the Appendix, by which free washing out of the Colon with normal Saline was practised: but without benefit, though Dr. Murrell admits that had it been performed earlier it might have been successful.

- g. The original case performed by Weir would seem to belong to this group of cases. It is to be found in the New York Medical Record of August 1902, page 201. The patient, a man aged 31 had for three years suffered from persistent diarrhoea which had latterly been associated with profuse dejections of blood more or less unmixd with faeces. He was very anaemic R.B.C's numbering 2,024,000 and Haemoglobin 27 per cent. He had from 20 to 25 actions daily. Appendicostomy was done in April 1902; the organ being fixed in position, and opened the same day to see if it was pervious; this being ascertained by the passage of a No.12 English Catheter; the end of the Appendix was ligatured to prevent possible soiling of the wound. Two days later irrigation was begun, a solution of Silver Nitrate of 2 grains to one ounce of water being used alternately with Bismuth, as these were found to give most relief. Two months later in June his condition had markedly improved/

markedly improved: the motions only numbering five or six daily and being free from blood. The blood count gave 3,600,000 R.B.C's per c.m.m. and Haemoglobin 60 per cent. At the time that the case was reported in August the patient was steadily gaining in weight and strength.

- h. Mr. Gray of Aberdeen has kindly given me notes of a third case done by him which has not been published.

The patient who was wasted and very weak had suffered for nine months from suppurative colitis, passing a large quantity of pus, perhaps a couple of pints, which was very foetid. The calls to stool were frequent. There was no melaena. He had been treated by numerous internal antiseptics given by the mouth, without any benefit.

An exploratory laparotomy revealed no malignant growth, but from the middle of the transverse Colon onwards, there was marked hypertrophy and some dilitation. Mr. Gray suggests that the hypertrophy was the result of the diarrhoea.

Encysted calculi were found in the gall bladder and removed.

The sphincter ani was at the same time divided to prevent the retention of pus in the Rectum.

High lavage of the bowel was employed; there was/

was no improvement in his condition.

Appendicostomy was done and on washing out the Colon from this opening immediate improvement resulted. The patient put on flesh rapidly, and the purulent discharge decreased markedly, though it was never overcome completely, and tended to recur in excess and in offensiveness when ever lavage was discontinued. The patient has not reported himself lately.

- i. Mr. George Chiene at the meeting of the Edinburgh branch of the British Medical Association in 1906 showed a case in which he had done Appendicostomy. The patient had suffered for some time from haemorrhage from the bowel, and had not improved under treatment. She was admitted to hospital in August 1905 and was treated with Potassium Iodide without benefit. As the bleeding continued and she was losing weight the abdomen was explored on 25th August but no abnormality was detected. Appendicostomy was performed, and its valvular action was perfect. Curiously the haemorrhage stopped, so the Appendix was removed four weeks later without ever having been utilised. The patient remained well for some months but by the end of 1906 was as bad again as ever. This case is really not worth including in the series, as the opening was never used for irrigating/

irrigating the Colon: probably the result would have been equally good had the Appendix been removed on 25th August instead of on 23rd September.

Of these nine cases described under the name Ulcerative Colitis the last one has very meagre notes, but such as they are, they do not to our mind justify the diagnosis, and we shall not further concern ourselves with its consideration.

The remaining eight with perhaps the exception of case h. seem to have been definite instances of this affection. No detail is given of case f. but the diagnosis was confirmed by a post mortem examination.

In forming a diagnosis of Ulcerative Colitis, the following symptoms are emphasised by Professor Hale White in Allbutt's System of Medicine. Abdominal pain, which is severe and paroxysmal, but does not bear any relation to meals. There is rarely tenesmus.

Severe diarrhoea, occurring up to twelve or even more times in the twenty four hours. The motions are fluid or even watery, foul smelling and of dark colour, unless they contain blood in large quantity. Mucus is not present in large quantity. Vomiting may be an additional symptom. The average age incidence is 40 years. Sex does not exert much influence. In this series/

series, of the seven cases in which sex is mentioned five were male and two female. In six cases the age is given and ranges from 21 to 53 years. The average being 36; c. the youngest suffered from Tuberculous Colitis, and of the others the average age was 39. Cases e. and f. both died, but the disease was probably far advanced before Appendicostomy was done. Case e. did improve temporarily however.

In one case d. there had been temporary cure for thirteen months; treatment was then begun again through the old opening.

Of the remaining five patients the information is not very recent, but at the time of their publication, two were cured, and three were improving.

The prognosis of Ulcerative Colitis is very grave as a rule; and in the article above referred to, Hale White seems to question the correctness of the diagnosis if a patient recovers; in case d. however, in which all signs of the ulceration disappeared for a year, the diagnosis was beyond question as the ulcers had been seen through the sigmoidoscope.

Bearing this in mind, the results from irrigation/

irrigation of the Colon in these cases has been most encouraging and favours further trial of this method in similar cases; for the most hopeful treatment suggested by Hale white is the formation of an artificial anus just above the Caecum through which the faeces can discharge and through which the Colon can be irrigated.

A solution of Silver Nitrate is probably the best irrigant to use.

III. Amoebic Dysentery.

- a. A case of this condition treated by irrigation through the Appendix was reported by Mr. W. Meyer in the article already quoted from the New York Medical News. August 1905.

The patient was a male aged 23, who early in 1904 had been treated by high intestinal irrigation in the knee-elbow position with apparent cure; but in whom the symptoms recurred in November of the same year; he had frequent abdominal cramps and from five to fifteen actions of the bowels daily; the motions being mixed with Mucus and blood, and in them Amoebae were found. Appendicostomy was done in December 1904 and three days later irrigation by Silver Nitrate Solution was begun, but was soon substituted by a 2% Solution of Sodium Bicarbonate and Thymol used alternatively morning and evening. There was rapid improvement, and after five weeks the irrigation was discontinued as he felt well and no Amoebae were found. A few weeks later the symptoms and Amoebae returned, so again he was flushed through with Thymol 1:1000 and Silver Nitrate 1:20,000 twice a week. This resulted in what appears to be a permanent cure.

b./

- b. In the Annals of Surgery Vol. 37, page 613, there is a report of a case of Dr. R. Dawbarn's of New York. The patient aged 25 was admitted to hospital 15th September 1902. A year previously when a soldier in the Philippines he contracted Pneumonia and was in bed 10 days. During this illness his bowels were loose, there being four or five actions daily. Since then he had never been entirely well. In March 1902 he was in Hospital in San Francisco with Dysentery having from 15 to 20 small watery evacuations with blood and Mucus: he improved under treatment. He was treated in New York City Hospital from 30th June to 8th September 1902 and improved, but a week later the condition returned and Amoebae were found in the stools. On 10th December Appendicostomy was done, and next day irrigation with Potassium Permanganate solution 1 in 10,000 alternating with Normal Saline was begun; the irrigations were given every six hours, and a quantity of 10 pints at a temperature of 120°F. was employed. When the report was written six months later in June 1903, the soreness along the line of the Colon had disappeared and the Amoebic character of the discharge was wholly at an end.

- c. In the New York Medical Record of March 1905 page 455, is a contribution by Wm. H. Arthur, M.D., Surgeon at the U.S.A. Military Hospital at Washington entitled "Preliminary Report on the Treatment of Chronic Dysentery by irrigation of the Colon, through the Vermiform Appendix or an opening into the Caecum."

The first case described by Mr. Arthur was found at operation to have dense adhesions round the Appendix, and the second to have a partially obstructed Appendix necessitating in both a resort to Colostomy, so that though for the practical purposes of treatment these two cases might be included in our series, we shall only refer to them after giving his cases in which Appendicostomy was practised.

1. Mr. Arthur's third case was operated upon on 1st December 1904: there was no difficulty in the operation. Five weeks after operation he had gained 15 lbs in weight. The bowels were not opened except after irrigations: while he looked and felt much better. When the case was published Mr. Arthur said that it promised well, but it was too soon to pronounce him cured.
2. 3. Two other cases operated upon a week and three/

three days respectively before the paper was written, made it impossible to give a prognosis, but in the 1st of them it might not only be said that the injections were painless, but that the patient felt better after each administration of the solution of Quinine 1 in 1,500: and had asked for three instead of two irrigations per day.

4. After writing the paper Mr. Arthur had done a 6th case on 20th June 1905 and was able to report that the patient was already improving.

5. The first case of Mr. Arthur's in which he had been forced to do Colostomy on the Right side, was a young ex-soldier who had contracted Dysentery in the Philippines and had been treated off and on for three years: he was emaciated, weak, unable to stand any active exercise, or take any but liquid food without bringing on a bloody-mucous diarrhoea, not very painful, but debilitating. His motions numbered from 4 to 6 daily and contained Amoebae, blood and mucus. Operation July 1903. The Appendix was found tied down in adhesions and the Caecum so friable from ulceration that it was dangerous to attempt getting it up, the Colon was therefore stitched up to the Abdominal wall, and after 48 hours opened/

is opened just above the Ileo-Caecal junction and a catheter introduced. Irrigation was then performed twice daily for six weeks with 500 c.c. of Quinine Solution 1 in 2,000. Ice water and Hydrogen Peroxide were both tried but the former was found to produce too much depression, while the latter caused distension of the bowel from liberated Oxygen: both were discontinued. At the end of the six weeks no Amoebae could be found, but for six weeks longer irrigation was kept up, a $\frac{1}{4}$ per cent solution of Silver Nitrate being employed. The fistula closed spontaneously. He was in excellent health 18 months after the operation.

6. The second case was operated upon on 4th October 1904. His stools numbering from five to eight daily contained the Amoebae of Dysentery. The Appendix was not found freely patulous and it was necessary to do a Colostomy. On 2nd January 1905, Irrigation was stopped, and three months later the results were excellent: the motions were formed, he had an unrestricted diet, and had gained 26 lbs weight.

In this series there are eight cases of Amoebic Dysentery treated by irrigation of the Colon in/

in the direction of its normal peristalsis, and though in two of the eight it was found impracticable to employ the Appendix for the reasons given, yet the after treatment of these two cases in no way differed from that employed in the six who had Appendicostomy, and we may fairly include these two in analysing the results of treatment. It is to be regretted that more recent information is not available as to the after history of these cases, for in two of them there had not been sufficient time for any result to occur before the cases were published. There are thus left six cases in which the result of this treatment can be analysed.

In cases a. b. and c_5 permanent cure is claimed; in case c_6 the patient was in excellent health three months after treatment had been stopped. Cases C_1 and C_4 had improved.

It is of interest to note that the three cases for whom a cure is claimed had each suffered from the disease for a long time, and had been carefully treated in different hospitals: case a. having even had high rectal injections in the genu-pectoral position. In each of them the Amoebae were found on microscopical examination.

The most rational method of treating Dysentery according/

according to Professor Osler is by means of topical applications to the affected surfaces of the bowel. The disease is in almost all instances restricted to the large intestine, so that irrigation offers a valuable method of treating these cases. This form of treatment was introduced by Hare of Edinburgh: but is often difficult to carry out on account of the great irritability of the Rectum and the tenesmus which is set up, while to be of real value the whole Colon must be irrigated. Experience has shown that the most useful drugs for irrigation are solutions of Silver Nitrate and Quinine, and though their use is said not to be free from risk, yet Professor Osler in his text book says that he has never heard of a case of Argyria, nor seen any ill effects from the use of large amounts of Quinine, in these cases.

In this province then, there would seem to be a wide field of usefulness for treatment through an Appendicostomy opening: two cogent reasons in its favour being that the whole surface of the Colon can be effectively treated, and that the tenesmus and pain frequently produced by Rectal injections does not occur by this method.

One would not indiscriminately suggest the use of this means of treatment for every case of Dysentery/

IV. CHRONIC DYSENTERY
 Dysentery: for many cases recover by simpler methods, and for many Rectal irrigation is sufficient to cure the disease: but in those cases in which, as in a. this had failed and in those in which it causes much discomfort, then in these remaining cases it might be found that Appendicostomy holds out the most certain chances of recovery. The cases which have been here collected are encouraging so far as they go.

It is not needful nor perhaps advisable to completely destroy the Appendix when its term of usefulness is over, but merely to close its extremity as recommended on page 10.

After years of suffering she had no further trouble from them. She tried various diets and found that milk and rice was best. She was naturally cheerful, but suffered greatly from frontal headache and was unable to do any work. She was a domestic servant. The bowels were hard, dry and the tongue foul. She had been married thirteen years; and in addition to suffering from dysentery she had a large quantity of cancerous growth in the rectum.

On the 1st of May the Appendix was found normal and brought down to the abdominal wall and fixed.

fixed in place. The wound healed without any

IV. CHRONIC CONSTIPATION.

a. A woman aged 39 was admitted on 3rd April 1906 to the Kidderminster Infirmary under the care of Mr. W. Hodson Moore. Her history was as follows:-

She had always suffered from constipation, and as a girl she used sometimes to cry with pain when the bowels moved. Actions have never been more frequent than once in three or four days, the average time being once every week or ten days, and on one occasion there was no motion for fifteen days. Fifteen years ago at the age of twenty-four she developed haemorrhoids which gave her great inconvenience. She had them removed by Dr. Moore eleven years ago; and has had no further trouble from them. She had tried various diets and found that milk suited her best. She was naturally cheerful, but suffered greatly from frontal headaches and lassitude, yet was able to continue at her work as a domestic servant. The teeth were badly decayed and the tongue foul. She had used enemata for thirteen years; and in addition had used large quantities of Castor Oil and Saline purgatives.

On 9th April the Appendix was found normal and brought out through the abdominal wall and fixed/

fixed in place. The wound healed without any trouble and on 16th April the Appendix was opened. Two days later a pint of normal saline was injected, but there was no result, beyond a sensation of fullness and some discomfort, till the next day when the bowels moved twice.

On the 22nd one and a half pints of water and two drachms of Decoction of Aloes was injected at 10.45 a.m. and at 11.10. one pint and a quarter of stained water was passed per anum.

On the 23rd 1 pint water and 1 ounce of Mag. Sulph. was given with no result. For the next four days 1 pint water with $\frac{1}{2}$ ounce Decoct Aloes was given; the bowels acting 90, 40, 25 and 10 minutes afterwards on the respective days; which possibly indicated an improved tonicity of the Colon from the administration of the Aloes.

During the next five days the Aloes was reduced to one drachm, but the pint of water was continued; on each of these days except the last there was an action about 20 minutes after the injection, there was not any gripping action from the Aloes.

On 3rd May as there had been no action on the previous day, $1\frac{1}{2}$ ounces of Olive Oil were injected at 10.20 a.m. and in the evening one pint/

pint of water with $\frac{1}{2}$ ounce of Decoct. Aloes was given with good effect.

On 4th, digital examination of the rectum revealed masses of scybalae which were apparently unaffected by all the irrigation that had been employed.

On 6th, seven ounces of Olive Oil and $1\frac{1}{2}$ ounces of Castor Oil were introduced and were retained: next day one pint of hot soap and water were run in and resulted in a large evacuation.

From the 8th to 16th inclusive there was a daily injection of one pint of soapy water with three ounces of Olive Oil; with good results. The patient was now greatly relieved and said that she was feeling in better health than she had experienced for twenty years.

On 17th, a rectal tube was inserted and the Colon irrigated with ten pints of water, While dipping massage over the colon was kept up; about three pints entered before the escape began. The flow from the Rectal tube was intermittent, as if due to large peristaltic waves by which from 2 to 3 pints were driven out. The water was discoloured and contained fragments of faeces and some mucus.

The head of water employed was about 18 inches.

There/

There was considerable discomfort and pain for some time after this procedure.

From the 18th to 23rd the warm water and Decoct. Aloes was used and was passed at once.

On the 24th two pints of Solution of Silver Nitrate 1:5,000 were instilled, after a preliminary irrigation with three pints of pure water. This did not cause any pain, and was passed almost immediately. The capacity of this patient's Colon was about three pints, as nearly as could be estimated.

The cicatrix is $3\frac{1}{2}$ inches long and in its centre is the opening of the Appendix.

In reply to a letter she writes under date of 15th March 1907, that her general health is very good, that her appetite is better, while she is freer from pain after food than she has been for years, and that she has gained ~~en~~ 1 stone, 13 lbs. in weight. She very rarely has a headache.

The opening is daily used for the introduction of from two to three pints of warm water only. This produces an action in about 10 minutes as a rule, but it may take up to 30 minutes. She never has an action without having recourse to either the injection or laxative medicine; but she only tries the latter about once a month.

There/

There has never been any leakage except once during what she describes as "a bad sick turn" : this may have been due to the violence of the retching. She considers it marvellous to have obtained such relief, and her only anxiety is lest the opening should close.

- b. Another case seen at Kidderminster Infirmary, was admitted on 24th March 1906 under the care of Mr. J. L. Stretton. The patient, a young woman aged 19 years: had been a healthy girl but troubled with constipation, until nine weeks before admission when she had an attack of acute abdominal pain and vomiting, which had kept her in bed for a week and prevented her going on with her work in domestic service. The pain had not been localised, but it was considered possibly as a mild attack of Appendicitis, which diagnosis was strengthened by the fact that at the operation the tip of the Appendix was found adherent in the Iliac Fossa. Since the attack of pain the constipation had been most obstinate. She was a well nourished girl. Abdominal palpation revealed nothing more than a certain general fullness and slight tenderness, and Rectal examination was negative. On 3rd April an incision was made over the region of the Appendix, which as above stated, was found adherent/

adherent at its tip. In the mesentery of the Ileum a caseating gland was found and removed. The Appendix was drawn up with difficulty as it was curled upon itself. On the 7th the wound was dressed and looked well: but it was desirable to straighten the Appendix further and to do this its mesentery was partly divided, there was fear of its vitality being endangered, and on the next day when it was dressed one's fears were substantiated as the distal part of the Appendix was gangrenous, showing that the circulation in its wall did not run along for any distance but that as in the small intestine the vessels run chiefly circularly. This necrosed portion was removed and though as a result the wound became infected, there was no barrier to daily use of the Appendicostomy.

On the 9th a number 8 rubber catheter was introduced easily and one pint of warm Boric lotion and two ounces of Mist. Alba, (containing Mag. Sulph 1 oz. and Mag. Carb. 1 drachm) was injected, two hours later there was an action of the bowels and during the night and next day four more. This treatment with the substitution of water for the Boric lotion was continued till the 15th, the result being several loose motions each day: the first occurring about half an hour after the injection/

injection. As this seemed a favourable method for observing the relative actions of different purgatives upon the large intestine, it was decided to try one drug for a few days and then another, and as they were introduced into the Caecum their effect was mainly upon the Colon.

On the 16th April one drachm of Decoct. Aloes in one ounce of water was injected without result. On the next day the bowels were moved half an hour after the injection. On the 18th the dose of Aloes was increased to four drachms, there being in all three actions, the first one hour after injection. The Aloes was thus used for five days: the motions produced by it were good, but it caused considerable griping. The liquid Extract of Cascara Sagrada was administered from the 21st to the end of the month, the dose was two drachms, except when it was doubled for five days from the 23rd to the 27th. We did not observe any marked difference between the effects of the two and of the four drachm doses, each was given for five days. Compared with the Aloes it seemed more certain in its action if somewhat slower: an interval of nearly five hours on an average elapsing between its administration and effect: the griping action was/

was distinctly less than that of Aloes. There was little difference in the consistence of the motions.

On the 1st May the administration of Olive Oil was begun in four drachm doses, and given daily up to the 17th with the exception of the 12th and 13th when Cascara was administered. The oil was very slow in acting except on the first day or two, but it caused little or no discomfort to the patient. She went home on 17th May being given a rubber catheter and small glass syringe with which she continued treatment. On 8th November, Mr. Stretton wrote that the patient had been in to report herself that day. "She is splendid in every way. Bright and bonny and suffers no discomfort. The little aperture looks quite healthy and gives her no trouble. She injects two drachms of Olive Oil each morning quite easily, and this keeps her bowels normal."

- c. In the British Medical Journal Vol.II. 1905, page 863 Mr. Keetley reports a case of chronic constipation occurring in a girl aged 15 years. An exploratory opening was made in the middle line below the umbilicus. The transverse Colon was found dragged down nearly to the Pubis. A button-hole opening was made through which the

Appendix was drawn with forceps. Four days later the tip of projecting Appendix was painlessly cut off and one pint of warm water introduced. Since then two ounces of Mist. Alba. and one pint of warm water had been given daily and produced an action. This she learned to administer herself through a No.10 red rubber catheter. There was absolutely no leakage.

In advancing radical methods such as Ileo-Sigmoidostomy or Appendicostomy in the treatment of such an extremely common condition as chronic constipation, one would require to be fully satisfied that in a given case, other more usual remedies or palliatives were ineffective, or from some cause undesirable or too troublesome to the patient. It is perhaps beyond our limits to go into a discussion of the many causes of chronic constipation: involving as that would a consideration of each part of the Alimentary Tract, and questions regarding the mode of life of the individual. In selecting suitable cases for treatment by either of the above named operations, it would seem that we are limited to those cases in which it is the large intestine that is at fault. The chief function of the large intestine is to abstract moisture from the /

the unassimilable residue of the food, which is passed on by the small intestine; and having abstracted the greater part of the moisture, to force on the semi-solid faecal matter. In normal conditions there must be a certain balance between these two powers of absorption and propulsion, while any departure from the normal in either one of them, from whatever slight cause, would tend to upset the other, with the production of a vicious circle; for example, excessive absorption would entail increased viscosity of the contents and require excessive peristalsis; while were the peristalsis, from any of the many possible reasons, below par, the contents lying longer in contact with the intestinal wall would become drier than normal, and would require excessive peristalsis to remove them, this we presume they cannot get, with as a result an imperfect emptying of the bowel. Now in practice these two defects are treated, firstly, by drugs, which may increase the moisture of the intestinal contents and so make their propulsion easier, or by stimulating peristalsis and thus hurrying on the contents before they have time to become too dry, or by the combination of both of these methods, or secondly, mechanically, by exercise and massage or by the coarse and bulky nature of the food./

food.

An enema acts probably both by its mechanical stimulation and by adding moisture to and softening the faeces: but it acts at a disadvantage, in that it has to produce its effects while working from the wrong end, if one may so say, for it is questionable if an ordinary enema passes further than the Splenic Flexure of the Colon, while it is known that the greatest absorption takes place in the Caput Caecum Coli, and it is by no means uncommon to find impacted scybalous masses at this part.

From this it would seem that had one the choice of introducing fluid either at the Rectum or at the Caecum, that the latter point would prove the more effective.

Cases such as that exemplified in a of this series are by no means rare, in which an effective action of the bowels can not be obtained by the use of drugs; and for some of these relief has been sought by the operation of Ileco-Sigmoidostomy, this produces a short circuit between the lower part of the Ileum and the Sigmoid Colon, which ensures the intestinal contents being semi-fluid when they reach the Rectum, but it does not prevent their passing back into the rest of the Colon, which acts as/

as a sort of back water where stagnation and putrefaction may go on. Further, the risk of this operation except in the hands of the most skilful surgeons is not negligible; for as it entails opening the most septic portion of the intestinal tract there must always be the possibility of infecting the peritoneum, while in Appendicostomy the risk of infecting the peritoneum is not worth consideration.

There is in the case of Appendicostomy the consideration of the trouble connected with after treatment: the introduction daily, or otherwise, of a catheter into the Caecum and through it injecting a certain quantity of fluid: this would not occur in Ileo-sigmoidostomy: but an advantage would be that the hour could be arranged at which the action would take place. There is the possibility of slight soiling from the opening necessitating a small dressing being worn, but it is a remarkable point that the valvular action is so complete.

Though the number of cases in this group is not sufficient to use as an argument of much value; there is no doubt in my mind that in Appendicostomy there is found a simple, safe, and effective means of dealing with that class of chronic constipation which has been considered above, and which does not yield to the ordinary methods of treatment. The results in case (a) have more than justified the operation.

V. CHRONIC DIARRHOEA.

There are two cases which we are forced to put under this heading, because they can not very well go in any of the other groups, yet they do not deserve a special class.

- a. Mr. Meyer in the article already referred to in the Medical News of August 26th 1905 mentions the following case. A man of 29 had suffered from Multiple Papilloma of the Rectum for which in July 1902 a left Inguinal Colotomy had been done, and in September the Rectum was resected. In May 1903 he was much reduced by frequent diarrhoea and haemorrhage so in June 1903 Appendicostomy was done, and lavage with Silver Nitrate alternating with Thymol was employed daily; irrigation occupied from 15 to 20 minutes. He at once began to improve; and after five months treatment he had gained considerably in weight, and his local trouble was much improved. He was depressed however by the previous artificial anus and it was decided to remove the Descending and half the Transverse Colon and make a new anus. In January 1904 the new artificial anus was made, and five weeks later the excluded portion of Colon was removed, but while doing this an abscess was found which burst/

burst into the general peritoneal cavity, and caused his death.

If we limit our attention to the results of irrigation through the Appendix with which we are concerned, it is gratifying to find that the diarrhoea and bleeding was at once affected beneficially by this treatment and though the termination of the case was most unfortunate it was in no way attributable to the Appendicostomy.

The nature of this case is uncertain but it is possible that the papillomata which were present in the Rectum, were not localised, but extended throughout the entire Colon. If this were so, then it is difficult to understand the mode of action of the treatment, beyond its styptic effect.

b. The fourth case done by Mr. Cotterill was for a painful condition of tenesmus of long standing, but it had not much effect. As we have no detail whatever of this case it is impossible to comment upon it.

VI./

VI. IDIOPATHIC EPILEPSY.

In the Journal of the American Medical Association 1906, Vol.I. page 1678, there is a contribution by Dr. Ernest Laplace of Philadelphia entitled "Preliminary report of the treatment of Idiopathic Epilepsy by Appendicostomy for Colonic Irrigation." In this article Dr. Laplace having considered the two classes of Epilepsy, Traumatic and Idiopathic, and its significance as a symptom of some irritation of the General Nervous System, passes on to a comparison of drugs with microbic toxines. He points out that as Strychnine has an affinity for the nervous system so has the toxine of Tetanus and Hydrophobia, and he considers that as some drugs have a cumulative action in the system so also may toxines. It is very common for Epileptics to suffer from some intestinal disorder, at any rate from constipation. Dr. Laplace refers to Metchnikoff's views in "The nature of Man," that from a standpoint of Anthropology, the Colon is a receptacle for refuse undigested matter; that human life would be sustained in a purer and more physiologic state without its presence. He also refers to the harmful effects of post operative constipation.

For these reasons he thinks the colon should/

should be flushed out. The first case was a male aged 23 who from the age of 16 had suffered from Idiopathic Epilepsy, at first the attacks occurred every week, but finally as often as three times a day, consciousness being lost for about an hour each time.

On the 1st July 1904 Appendicostomy was performed, and on the 5th irrigation was begun, two gallons of warm water being run through morning and evening every day for three months. Then for a second period of three months irrigation was performed thrice a week, and then once a week for three months more. There had been no irrigation since May 1905.

From the day of the first irrigation in July 1904 up to the present time May 1906 there had not been a single attack of Epilepsy.

There had been a violent fit on the day after the operation. He had gained 20 lbs, and had returned to work feeling absolutely well.

In addition to this case Dr. Laplace had four of a similar nature, and though they had not been operated upon for long enough to be reported in full, they gave ample encouragement for the continuance of this treatment.

He does not expect all cases to be cured by this means, but only those due to this auto-intoxication/

intoxication. He would also employ suitable dietetic measures.

These cases we consider to be of very great interest from the standpoint of the more recent views regarding the toxaemic theory of certain psychoses. It is not our intention to go into a discussion of the pros and cons of the theory of auto-intoxications as causal factors of these nervous diseases; suffice it for our present purpose that poisons absorbed from the intestinal tract have been suggested as the cause in certain mental cases. Acting on this theory many internal antiseptics have been used, and in some instances with good results. In 1903, in the Lancet, Vol, II, page 1832, Mr. Keetley suggested trying Ileco-Sigmoidostomy in lunatics, in order to overcome constipation, having in mind the large absorption of decomposition products from the Colon.

I have not found any instance in the literature in which this suggestion of Keetley's has been acted upon.

There certainly can be no more effective method of clearing out the large intestine than that employed by Laplace in the cases in which he has done Appendicostomy; and his results should encourage further trial of this treatment.

It/

It would not be well to be too optimistic of the results, but it is to be hoped that other instances would occur comparable with this first recorded case.

VII. SURGICAL CONDITIONS.

We are now left with several cases which do not belong to any of the preceding groups, but are more or less entirely surgical in their bearings; these must for the sake of completeness be mentioned, though this will be done in a few words.

Three of them suffered from malignant stricture at some part of the Colon, and the opening was merely used as an artificial anus.

- a. In the Lancet Vol.I, 1906, on page 1023 Mr. Keetley has notes of a case suffering from malignant disease primarily in the stomach, but involving the Transverse Colon and causing obstruction. The Appendix was opened as an alternative to Colotomy; and a Rectal tube inserted through which the faeces escaped so satisfactorily, that in 48 hours the greatly distended abdomen had emptied itself through the tube.

The condition of this Appendix was referred to under atrophy on page 9.

b./

- b. In May 1906 a female patient aged 66 was admitted to the Kidderminster Infirmary under Mr. Stretton, complaining of the passage of mucus, and of abdominal pain of considerable duration. A careful examination failed to reveal any tumour. Appendicostomy was performed with a view to irrigating the Colon, but though on several occasions this was successfully accomplished, there was increasingly a great tendency for regurgitation to take place: a month later her symptoms pointed very strongly to obstruction about the upper part of the Rectum though nothing could be made out. Laparotomy in the left iliac region revealed a malignant growth at the upper part of the Rectum, and a left sided Colotomy was done. This seemed to be necessary because though escape of faecal matter did occur through the Appendix, this was not sufficient to prevent part passing on and setting up excessive and painful peristalsis in the descending colon; while in addition there was a good deal of inflammation around the Appendicular opening.
- c. Mr. H. W. Gray in the Lancet Vol.I, 1906, on page 708 briefly mentions that he used the Appendix to/

Appendix to drain the bowel temporarily while union occurred after Colectomy for cancerous stricture. In a letter he mentions that the Appendix had shared in the general hypertrophy of the bowel above the stricture, being as large as one's thumb, and the lumen in proportion.

The question naturally arises why Appendicostomy should be performed in preference to Colotomy in cases of malignant stricture of the large bowel; this we are unable to answer, except where, as in case c. it is only wanted to drain the bowel for a few days. In case b. there was no suspicion of malignant disease at the time of the first operation, and as a matter of fact, after Colotomy was performed the inflamed opening of the Appendix healed completely over. It is interesting to know that in case a. evacuation was so complete: but we should also like to know whether, when the Rectal tube was removed, there was as complete valvular action; this seems improbable. A distinct superiority of Colotomy is the fact that a spur can be formed which practically prevents the intestinal contents passing on and forces them out at the opening, while in drainage/

drainage through the Appendix the faeces are as likely to pass along the Colon and collect above the stricture, as to pass out through the Appendix.

It does not seem to the writer that in malignant stricture of the Colon any advantage is gained by Appendicostomy, if indeed it is as good as Colotomy.

Two instances are recorded by Dr. Charles Maunsell in the Lancet of April 28th 1906.

- d. The first of these was a case of Volvulus of the Caecum in a woman aged 77. There was a well marked meso-colon which had allowed the Caecum and part of the ascending Colon to rotate inwards, while a portion of Ileum had twisted round them and was threatening strangulation. The Appendix was used to anchor the parts, was opened, and a catheter left in situ for four days, during which much flatus and a little fluid faeces escaped. We find it difficult to see that any real good was gained by this procedure.
- e. The second case was a child aged 11 years in whom strangulation by means of an omental band had occurred. The condition of the child was hopeless/

hopeless, but four feet of small intestine were resected and Appendicostomy done, this worked well and prevented abdominal distension but the child died. Mr Maunsell was very pleased with the effects of the opening and intends to use this operation where Ileus, that is distension of the bowel, is likely to take place. This method may be of use occasionally as it is sometimes advisable at the time of operation to relieve the distension of the bowel, and though this is generally done by a trocar and canula, and the opening closed at once; yet there would be an advantage in having an opening for a few days to relieve the distension.

- f. removed the decomposing contents of the bowel, while doubtless some fluid was absorbed and stimulated the circulation. It is seldom that occasions present themselves in which this procedure could be repeated, but if the Colon Caecum and part of the Ascending Colon were invaginated into the Ascending and Transverse Colon. The Intussusception was reduced, and the Appendix which was $6\frac{1}{2}$ inches long was brought out through a small opening, fixed, and cut short. After the operation the child was not collapsed and was soon asleep; but later in the day it became/

became worse and collapsed, and the pulse could not be counted. Eight ounces of normal saline were run in and produced a dark offensive motion. Lavage was kept up for ten days, latterly only warm water being used. With a tube placed in the rectum, flow began after about fifteen ounces had been run in. A fortnight after the operation the Appendix was completely amputated, but its site was sutured to the abdominal wall to prevent a possible recurrence.

In this case irrigation of the Colon seems to have been of distinct benefit acting as a fomentation in assisting the congested portion of bowel to right itself, in addition it removed the decomposing contents of the bowel, while doubtless some fluid was absorbed and stimulated the circulation. It is seldom that occasions present themselves in which this procedure could be repeated, but if the Colon were seriously congested, Appendicostomy might be performed with advantage, but we do not think that it is at all an essential proceeding.

This concludes our series of cases, and it only remains to mention one or two conditions for which treatment by means of Appendicostomy has been suggested./

suggested.

Sir Wm. Bennett in his article in the Lancet Vol.I, 1906, page 419 mentions that Typhoid Fever might be treated topically by this means. On page 1311 of the same volume Dr. Wm. Ewart takes up the same point, and mentions that he had been able to introduce without difficulty a catheter into the lower end of the Ileum through the Appendix. To do this he introduced a wire stilette down the catheter, and at about $2\frac{1}{2}$ inches from the tip bent it to an angle of 110° ; this was then passed into the Caecum, and downwards inwards and backwards towards the nearest point on the pelvic brim. It then entered the Ileo-Caecal valve, the maximum distance being nine inches: this was ascertained by means of the X. rays.

For systematic lavage of the lower Ileum he recommends two tubes, a smaller introduced higher than the larger which only enters the Caecum for the return flow.

Mr. Keetley in referring to this subject on page 1023 of the same volume considers the advisability of Appendicostomy sometimes, but thinks that as a rule enterostomy about three feet above the Ileo-Caecal valve would be better. He says that the operative treatment of Typhoid Fever ought not to mean/

mean taking the disease out of the Physician's domain and transferring it to the Surgeon's, it is a means of facilitating treatment by the Physician.

Dr. Ewart in his paper says that it is clearly too late to begin local treatment of the bowel when the patient is in extremis.

There is present in the constitution of some persons such enthusiasm and enterprise in taking up a new idea, that this impulse is apt to produce a disregard for principles which would under other conditions put a check upon their pronouncements. Such enthusiasm, we venture to think, has been displayed by those who suggest to treat cases of Typhoid Fever in this way. We are told that it is not to be a routine procedure, nor on the other hand are we to wait till the patient is very ill. Now in an ordinary case of Typhoid we expect the temperature to fall during the third week: in these cases then, what is to be gained by operation; whereas if the temperature keeps up for longer and the patient is seriously ill, we presume that ulceration is taking place in a more or less marked degree. When a patient is thus seriously ill, we consider that Appendicostomy and any problematical benefits to be derived therefrom, is entirely/

entirely outside the field of practical therapeutics; our reasons being, that the Typhoid bacilli lying in the deeper parts of the intestinal wall can not be affected by topical antiseptic applications; that, these antiseptics must have a destructive action upon the surface of the ulcers, so tending to thin the intestinal wall, thus predisposing to perforation: that, the distension of the bowel by the antiseptic fluid would tend to produce perforation at any weak point; that, as the relative position of the Ileo-caecal valve to the Appendix is not by any means constant it might be found impossible to pass the catheter into the Ileum; that the catheter if it were passed might itself cause perforation; and that the operation would needlessly impose a strain on the strength of a patient already very weak, while it might be found impossible to utilise the Appendix.

In the article quoted above, Sir Wm. Bennett suggests using Appendicostomy as a means of introducing nourishment in certain cases. Absorption of nutrient enemata has been sufficient in many cases to keep patients alive for several weeks: but this absorption is far from perfect, and the nutrients are very liable to set up irritation in the Rectum. It is difficult to say/

say how much more success would attend the administration of these nutrients through the Appendix; it is reasonable however to expect, despite the slight powers of the Colon for absorbing food stuffs, that the patient could be better nourished from this point than from the Rectum. The point to decide in any case would be whether the operation were really necessary or not.

This brings our paper to a close. We have studied the effects of Appendicostomy in a number of diseases, illustrated by cases of much interest, and have seen how beneficial the results have been in some of them. Our conclusion is that we can with considerable confidence rely upon this line of treatment to assist us, in suitably selected cases, when other means have failed. There must ever be cases which we are unable to cure, but any new line of treatment which offers relief to those whom other methods have not benefitted, can only be welcomed by those whose lives are spent in the stern fight against disease and suffering.